

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of

Modification of Parts 2 and 15 of the
Commission's Rules for Unlicensed
Devices and Equipment Approval.

ET Docket No. 03-201

**OPPOSITION OF MOTOROLA, INC., TO
CELLNET PETITION FOR RECONSIDERATION**

Motorola, Inc. ("Motorola"), respectfully submits this opposition to Cellnet's Petition for Reconsideration in the above-referenced docket.¹ Cellnet's request that the Commission reconsider its decision not to impose a spectrum etiquette or duty cycle limitation on unlicensed devices in the 900 MHz band² should be rejected for the same two reasons stated in the *Report and Order*.³

First, the additional requirements on 900 MHz unlicensed devices would have little impact on an already crowded band that is heavily used by primary operations and millions of unlicensed devices. Second, the additional regulations would unnecessarily constrain design

¹ See Cellnet Petition for Limited Reconsideration, Oct. 7, 2004, ET Docket No. 03-201.

² See Cellnet Petition at 8.

³ See Modification of Parts 2 and 15 of the Commission's Rules for unlicensed devices and equipment approval, *Report and Order*, ET Docket 03-201, July 12, 2004 ("Report and Order") at ¶ 54.

flexibility, which has been a critical component of the success of unlicensed operations in this band.⁴

Cellnet's Petition also requests that the FCC "confirm ... the obligation of all operators of unlicensed devices authorized under Part 15 to avoid harmful interference to licensed *and unlicensed* devices."⁵ However, the Commission has held that "Part 15 transmitters have *never* been afforded any assurance that their transmissions will be protected from interference received from other devices."⁶ This request, which calls for a fundamental revision of the principles underlying Part 15, is well beyond the scope of this proceeding and should also be rejected.

Hundreds of manufacturers, including Motorola, have designed and sold – and are continuing to develop – 900 MHz unlicensed equipment that would be adversely affected if the FCC were to grant Cellnet's Petition. Motorola's Canopy product, for example, is a high-speed, and cost-effective, wireless broadband platform that uses 900 MHz, 2.4 GHz and 5 GHz unlicensed spectrum to provide broadband connectivity to rural and to residential communities, as well as business and educational campuses.⁷ The lower frequencies are particularly well

⁴ *Report and Order* at ¶ 54. Cellnet also fails to identify any facts that were not before the Commission prior to the release of the *Report and Order*, but instead relies entirely upon prior arguments made by Itron and Microsoft, which the FCC fully considered and rejected. *See* Cellnet Petition at 6-7. A petition for reconsideration must be based on facts that "have not previously been presented to the Commission." 47 C.F.R. §§ 1.429(b).

⁵ Cellnet Petition at 8 (emphasis added).

⁶ Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices, *First Report and Order*, 15 FCC Rcd. 16244 (2000) (emphasis added). *See also* 47 C.F.R. §§ 15.5(a) and (b).

⁷ Information on the Canopy™ system, including detailed technical specifications, is *available* at <http://motorola.canopywireless.com/>.

suited to provide broadband connections in rural areas due to the enhanced propagation characteristics of this band.

Recently announced system enhancements allow Canopy radios to reach up to 40 miles in point-to-multipoint, line-of-sight applications and provide enhanced penetration for non line-of-sight applications.⁸ The Canopy product can operate with duty cycles of 50%, and the Itron proposal (put forth again by way of reference in the Cellnet Petition) would require Canopy's transmit power to be reduced by 10 dB.⁹ This proposal would severely limit the ability of this product to meet the deployment demands for rural broadband services.

I. THE PETITION FOR RECONSIDERATION SHOULD BE DENIED.

A. The FCC Appropriately Determined That A Spectrum Etiquette And A Duty Cycle Limitation Are Unnecessary At 900 MHz.

Cellnet wants the Commission to adopt a duty cycle limitation and a spectrum etiquette to govern newly certified Part 15 equipment that uses digital modulation techniques.¹⁰ The FCC appropriately rejected both of these requests.¹¹

⁸ See Motorola Launches Newly Integrated 900 MHz Canopy™ Wireless Broadband Radios, Nov. 23, 2004, *available at* <http://motorola.canopywireless.com/press/112304.php>.

⁹ See Itron comments at Appendix A.

¹⁰ See Cellnet Petition at 8.

¹¹ See *Report and Order* at ¶¶ 53-54. As Motorola explained in its comments in this proceeding, and as the FCC concurred in the *Report and Order*, while a spectrum access etiquette may be appropriate in future bands made available for unlicensed operations, such as in the “TV White Space” proceeding, the lack of an etiquette at 900 MHz has brought forth remarkable innovation. See Comments of Motorola, ET Docket No. 03-201, Jan 23, 2004; *Report and Order* at ¶ 1 and ¶ 54.

1. The 900 MHz Band Is Occupied By Licensed, ISM, and Unlicensed Users.

The Commission found a spectrum etiquette and duty cycle limitation unnecessary because the 900 MHz band is already used by licensed services, as well as a wide variety of Industrial, Scientific, and Medical (“ISM”) devices and unlicensed equipment.¹² Unlicensed Part 15 devices are permitted in the band on a non-interference basis. That is, unlicensed equipment operating pursuant to Part 15 must accept RF interference from all of the licensed services and ISM devices, as well as from all other Part 15 equipment. As the FCC properly determined, Cellnet’s requested restrictions would have little impact on unlicensed operations at 900 MHz, as Part 15 devices in the band currently must deal with radio signals from so many other sources.

In fact, the risk of interference to unlicensed services from other Part 15 devices is substantially less than the interference from higher-powered licensed and ISM operations. ISM operations, in particular, possibly pose the greatest interference threat, as ISM devices operating in the 900 MHz band are “permitted unlimited radiated energy.”¹³ ISM equipment produces RF energy to perform diagnostic, imaging, heating, and other non-communications operations, and includes devices such as industrial heating and welding equipment, microwave ovens, RF lighting devices, and magnetic resonance (“MRI”) and ultrasonic medical equipment.¹⁴ Such

¹² See Report and Order at ¶ 54.

¹³ See 47 C.F.R. § 18.305.

¹⁴ See 47 CFR §18.107(c) (“Typical ISM applications are the production of physical, biological, or chemical effects such as heating, ionization of gases, mechanical vibrations, hair removal and acceleration of charged particles.”). Section 15.5(b) of the FCC’s rules makes clear that unlicensed devices must accept interference received from other devices, including ISM equipment.

devices are located in both residential and business environments. Notably, *all* RF communications devices in this band (*i.e.*, licensed and unlicensed devices) are required to accept any interference caused by ISM equipment.¹⁵

Even though the 900 MHz band is far from an interference-free environment, unlicensed device manufacturers have been able to make extensive use of the band as evidenced by the many millions of 900 MHz Part 15 devices in operation. In addition to the automatic meter reading systems (such as those used by Cellnet and Itron), alarm systems, wireless local area networks (“WLANs”), cordless telephones, and package tracking and shipping control systems, all operate in the band on an unlicensed basis.

Even if the FCC were to impose a duty cycle requirement or a spectrum etiquette on future 900 MHz unlicensed devices, it would, at most, have a negligible impact on the RF environment given the existing use by licensed, ISM, and unlicensed devices.

2. Design Flexibility at 900 MHz Has Enabled Efficient And Innovative Spectrum Use.

In deciding against imposing a spectrum etiquette or duty cycle requirement in the 900 MHz band, the FCC also determined that design flexibility permitted by the existing regulations has spurred unlicensed device manufacturers to develop efficient sharing and modulation schemes.¹⁶ In fact, the Commission used the *Report and Order* to enhance Part 15 design flexibility and give device manufacturers the ability to develop expanded unlicensed

¹⁵ See 47 C.F.R. § 18.301.

¹⁶ See *Report and Order* at ¶ 54.

wireless applications in order to “stimulate[] investment and innovation in broadband technology and services.”¹⁷ As the Commission undoubtedly recognized, the imposition of additional regulatory burdens at 900 MHz would be a step backwards.

The importance of Part 15 flexibility may be best stated in an FCC staff working paper:

It is flexibility which gives unlicensed devices continuing promise. We believe that technologies versatile enough to be used in devices ranging from lifesaving heart monitors to steak monitors for a barbeque will continue to permeate our markets and spur growing sales volumes. ... **In promulgating rules to encourage more efficient use of spectrum or to allocate spectrum for unlicensed use the FCC must be mindful of balancing competing interests, and protecting against harmful interference while it retains the low entry barriers that have proven so successful.**¹⁸

Revisions made to Part 15 nearly twenty years ago provided greater flexibility in the types of unlicensed devices that could be developed.¹⁹ These revisions have been hugely successful, as they have led to the large numbers of unlicensed devices in use today. The risk that a spectrum etiquette or duty cycle requirement in this band will stifle unlicensed product development and innovation outweighs any unproven benefits.

The arguments made in Cellnet’s Petition were raised and rejected by the Commission in the *Report and Order*, and they should be rejected again.²⁰

¹⁷ *Report and Order* at ¶ 1.

¹⁸ K.R. Carter, A. Lahjouji, & Neil McNeil, *Unlicensed and Unshackled: A Joint OSP-OET White Paper on Unlicensed Devices and Their Regulatory Issues*, May 2003, FCC, OSP Working Paper Series at 50 (emphasis added).

¹⁹ See Authorization of spread spectrum and other wideband emissions not presently provided for in the FCC Rules and Regulations, *First Report and Order*, 58 RR.2d 251 (1985)

²⁰ Cellnet does not identify any arguments or facts that were not previously presented to the Commission. Section 1.429 of the Commission’s Rules, which governs the FCC’s review of Cellnet’s Petition for Reconsideration, requires the petitioner to identify “facts that have not

B. Cellnet's Additional Request To Rewrite The Part 15 Rules Must Be Denied.

Cellnet's Petition also asks the FCC to order that Part 15 unlicensed operations be required to avoid causing harmful interference to other Part 15 unlicensed operations. Such a requirement would be a fundamental revision of the principles underlying Part 15, and thereby impact *all* unlicensed operations.

"Part 15 transmitters have never been afforded any assurance that their transmissions will be protected from interference received from other devices."²¹ Indeed, FCC regulations plainly state that operators of "intentional or unintentional radiators shall not be deemed to have any vested or recognizable right to continued use of any given frequency," and that interference from RF devices (including unlicensed devices) "must be accepted."²²

(Continued)

previously been presented to the Commission." Cellnet did not file any comments in this proceeding, but instead relies on earlier arguments made by Itron and Microsoft. *See* Cellnet Petition at 6-8.

Moreover, Cellnet did not identify any changed circumstances (nor any facts that it was not aware of) since it last had the opportunity to present them to the Commission. *See* 47 C.F.R. § 1.429(b)(1) and (2). *See also* Argonia Unified School District #359 Zenda, Kansas, *Memorandum Opinion and Order*, 12 FCC Rcd 11785, ¶ 6 (1997) ("BPS makes no attempt to demonstrate that any of these circumstances [to support a petition for reconsideration] is present here, nor could it, given the fact that it was always within the power of BPS to inform the Commission of its membership in a consortium.").

²¹ Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices, *First Report and Order*, 15 FCC Rcd. 16244 (2000).

²² 47 C.F.R. §§ 15.5(a) and (b).

Moreover, this issue was not even presented in the *Notice of Proposed Rulemaking*.²³ As such, it is outside the scope of this proceeding and should be rejected on that ground alone.²⁴ If Cellnet seeks to rewrite the Part 15 rules, it must file a petition for rulemaking in accordance with the Administrative Procedure Act.²⁵

Rule Section 15.5 requires that unlicensed devices must accept interference from licensed and from other unlicensed equipment operating in accordance with FCC rules. Unlicensed equipment operators need not, as Cellnet insists, “work cooperatively with [other unlicensed] operators ... experiencing interference.”²⁶ Unlicensed equipment that complies with the Part 15 regulations is under no obligation to remedy interference caused to another unlicensed user. Even Microsoft, whose comments were heavily quoted by Cellnet, acknowledged in this proceeding that “no unlicensed device can claim protection from any other unlicensed device.”²⁷

Indeed, if the principles espoused by Cellnet were adopted by the FCC in a band as heterogeneous as 902-928 MHz, instead of creating harmony, it likely would lead to numerous

²³ Modification of Parts 2 and 15 of the Commission’s Rules for Unlicensed Devices and Equipment Approval, *Notice of Proposed Rulemaking*, ET Docket No. 03-201, Sept. 17, 2003 (“*NPRM*”).

²⁴ See Implementation of Section 309(j) of the Communications Act - Competitive Bidding, *Tenth Report and Order*, 11 FCC Rcd. 19974, ¶ 21 (1996) (“[T]his type of relief falls outside the scope of this proceeding.”).

²⁵ See *id.* (The proposal “requires formal rule making procedures and is beyond the scope of this proceeding.”).

²⁶ Cellnet Petition at 8.

²⁷ Comments of Microsoft Corp., Jan. 24, 2004, ET Docket No. 03-201, at 2.

disputes that would be hard to resolve. The Commission would need to seriously consider the impact of a scheme that is likely to demand such administrative oversight and resolution.

II. CONCLUSION

Cellnet's Petition for Reconsideration should be denied. As the Commission determined in the *Report and Order*, unlicensed operations at 900 MHz must already contend with a wide variety of licensed users and ISM equipment and imposing a duty cycle or spectrum etiquette will not have any appreciable impact on the RF energy already present in the band. Moreover, design flexibility, which has been a key component of the success of unlicensed operations at 900 MHz, would be compromised by a spectrum etiquette or duty cycle requirement.

Cellnet's additional request that the Commission provide interference protection to unlicensed operations should be set aside not simply because the issue was not raised in the *Notice of Proposed Rulemaking*, but also because it would constitute a fundamental revision to the basic tenet of Part 15 operation. Part 15 operations have never been afforded any interference protection, and there is no reason to change that.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on December 6, 2004, in addition to being electronically filed into ET Docket No. 03-201 via ECFS, the foregoing OPPOSITION OF MOTOROLA, INC. was delivered by First Class mail to Mr. Houchins and by electronic mail to Messrs. Thomas, Knapp, and McNeil.

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